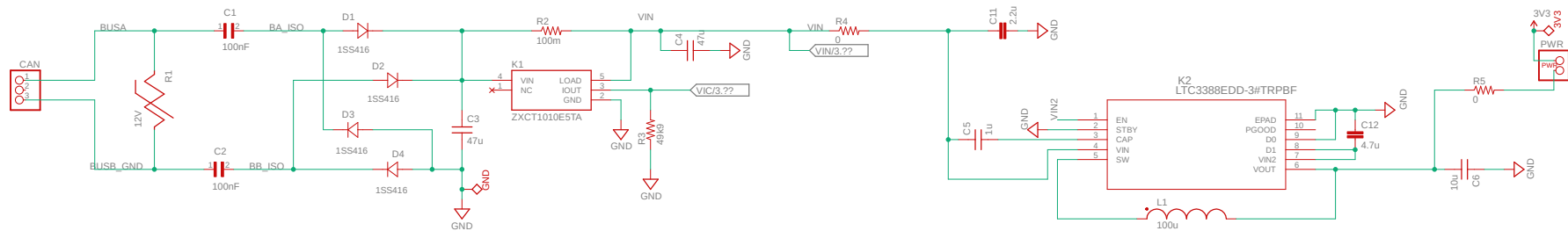
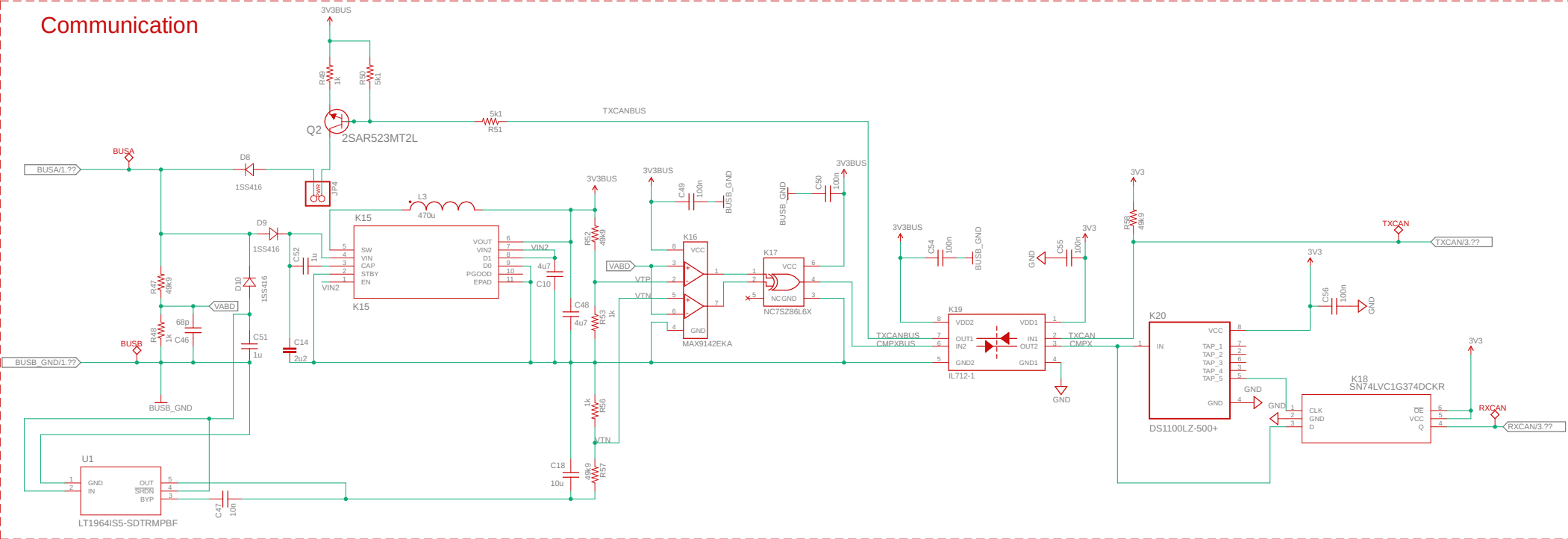


## Power

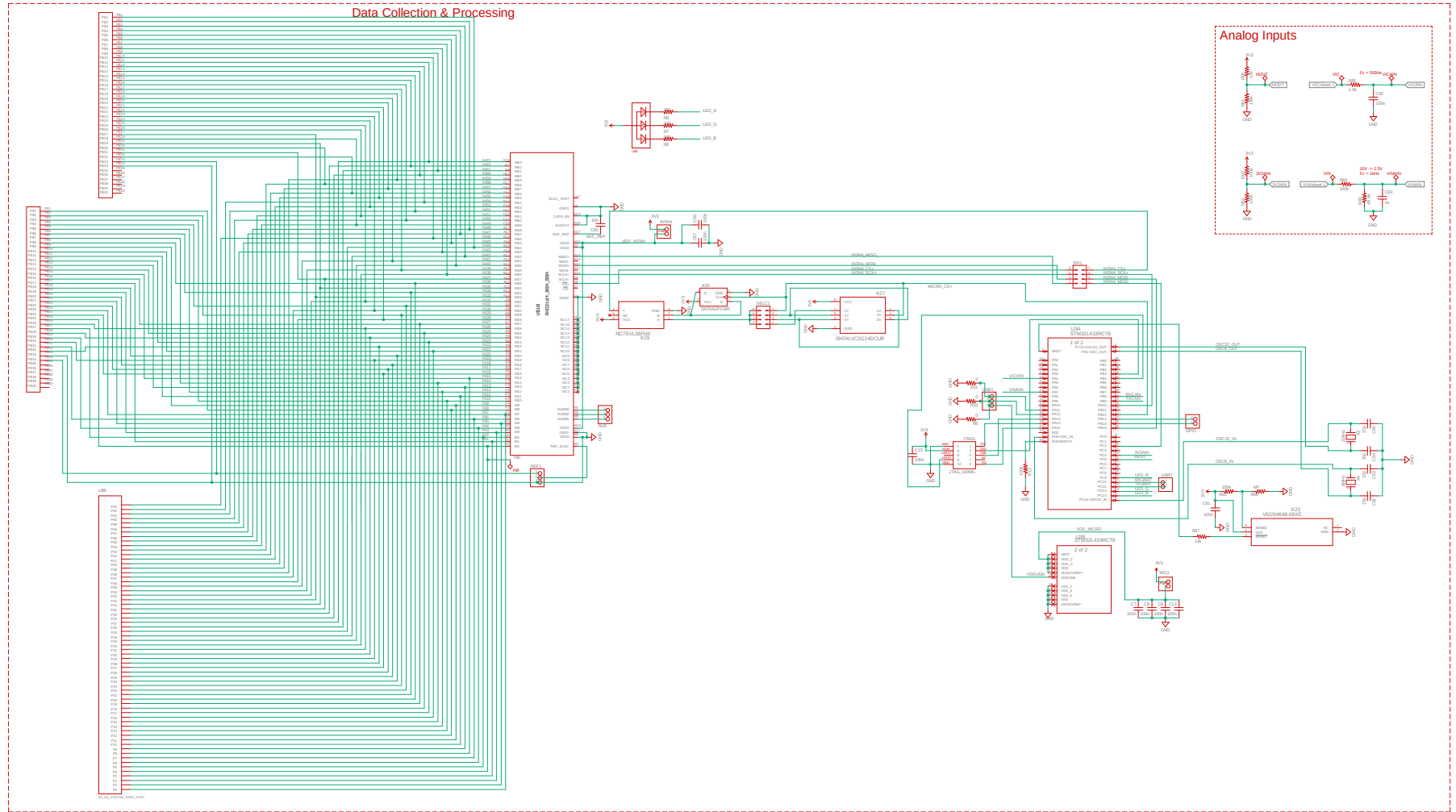


# HIVE Development Board V0.1 Schematic - COSMIIC Communication Circuitry

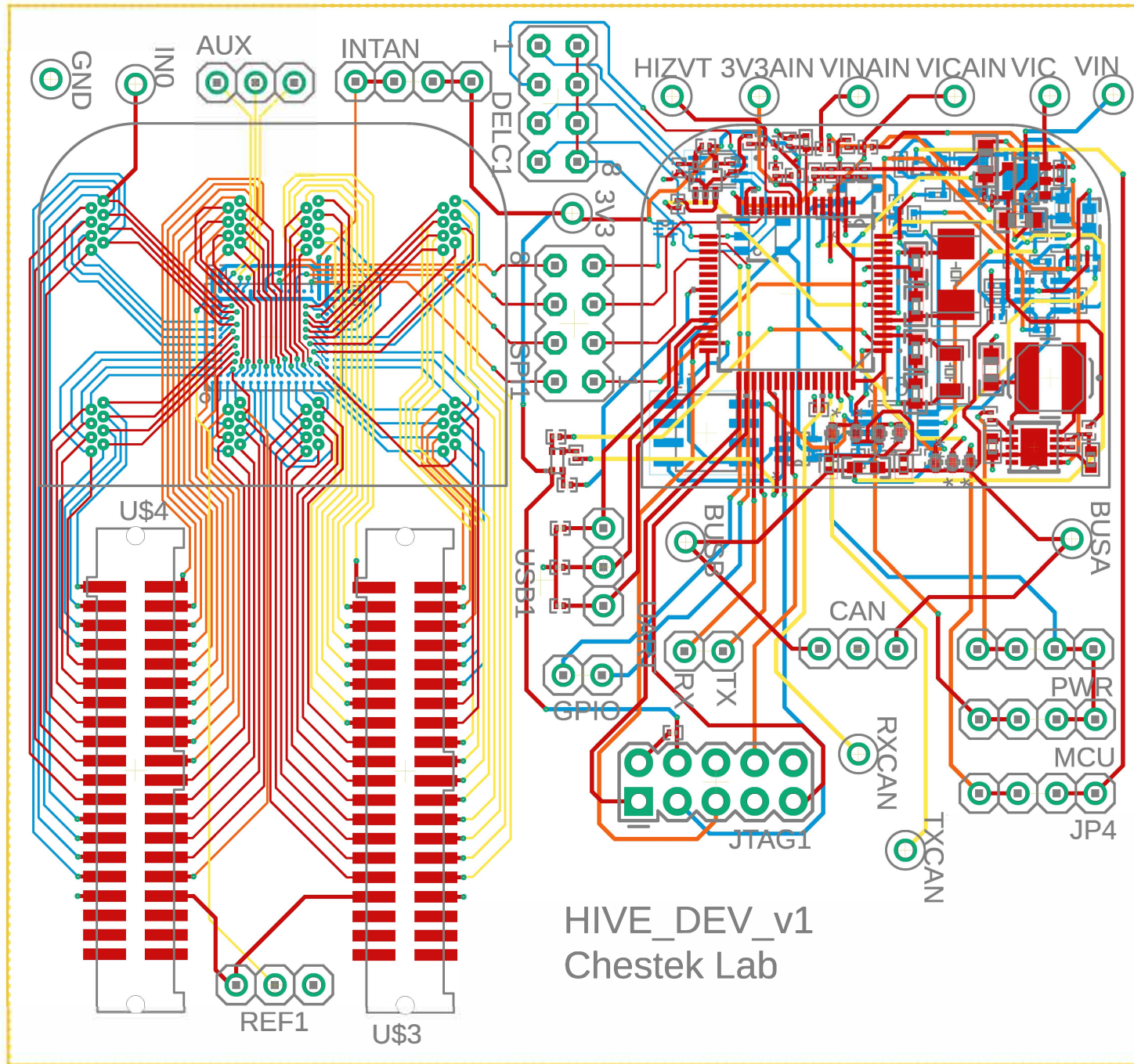
## Communication



# HIVE Development Board V0.1 Schematic - Signal Processing Circuitry



# HIVE Development Board V0.1 Layout



# HIVE Development Board V0.1 Bill of Materials

Item #	Qty	Ref Des	Manufacturer	Manf part num	Description	Package	Type	Comment
1	2	DEL1, SPI1	Samtec Inc.	TSW-104-07-F-D	CONN HEADER VERT 8POS 2.54MM	TH	Thru-hole	
2	3	GPIO, UART	Würth Elektronik	61300211121	CONN HEADER VERT 2POS 2.54MM	TH	Thru-hole	
3	4	AUX, CAN, REF1, USB1	Würth Elektronik	61300311121	CONN HEADER VERT 3POS 2.54MM	TH	Thru-hole	
4	4	INTAN, IP4, MCU, PWR	Würth Elektronik	61300411121	CONN HEADER VERT 4POS 2.54MM	TH	Thru-hole	
5	5	R4, R5, R6, R10, R11	Panasonic Electronic Components	ERJ-1GN0R00C	RES SMD 0 OHM JUMPER 1/20W 0201	0201	SMT	
6	1	R85	Panasonic Electronic Components	ERJ-1GNF1601C	RES SMD 1.6K OHM 1% 1/20W 0201	0201	SMT	
7	5	R12, R65, R81, R82, R83	YAGEO	RC0201JR-07100KL	RES 100K OHM 5% 1/20W 0201	0201	SMT	
8	1	R2	ROHM Semiconductor	UCR006YVPLR10	Current Sense Resistors - SMD 0201 0.1ohm 5% CS-Thk Film	0201	SMT	
9	14	C7, C8, C9, C13, C15, C49, C50, C54, C55, C56, C57, C58, C61, C82	Murata Electronics	GRM033Z71C104ME14D	CAP CER 0.1UF 16V X7R 0201	0201	SMT	
10	2	C1, C2	Taiyo Yuden	UMK105BJ104KV-F	CAP CER 0.1UF 50V X5R 0402	0402	SMT	
11	1	L1	Coilcraft	LPS4414-104MRC	Shielded power inductor 100uH	2-SMD	SMT	
12	1	R67	Panasonic Electronic Components	ERJ-1GNJ103C	RES SMD 10K OHM 5% 1/20W 0201	0201	SMT	
13	2	C47, C60	Murata Electronics	GRM033R71A103KA01D	10000 pF ±10% 10V Ceramic Capacitor X7R 0201 (0603 Metric)	0201	SMT	
14	1	C6	Taiyo Yuden	JMK107ABJ106MAHT	CAP CER 10UF 6.3V X5R 0603	0603	SMT	
15	1	C18	Murata Electronics	GRM035R60J475ME15J	CAP CER 4.7UF 6.3V X5R 0201	0201	SMT	
16	1	R1	Bourns Inc	CG0603MLC-12LE	VARISTOR 12V 0603	0603	SMT	
17	1	R84	Panasonic Electronic Components	ERJ-1GNF1503C	RES SMD 150K OHM 1% 1/20W 0201	0201	SMT	
18	1	R80	Panasonic Electronic Components	ERJ-1GNF1502C	SMD 0201 15Kohm 1% HalogenFree AEC-Q200	0201	SMT	
19	2	C62, C63	Murata Electronics	GRM1555C1H150JA01D	CAP CER 15PF 50V COG/NP0 0402	0402	SMT	
20	7	D1, D2, D3, D4, D8, D9, D10	Toshiba Semiconductor and Storage	1SS416,L3M	DIODE SCHOTTKY 30V 100MA SOD923	SOD-923	SMT	
21	4	R48, R49, R53, R56	Panasonic Electronic Components	ERJ-1GNF1001C	1 kOhms ±1% 0.05W, 1/20W Chip Resistor 0201 (0603 Metric) Thick Film	0201	SMT	
22	1	C83	Murata Electronics	GRM033R71E102KA01D	1000 pF ±10% 25V Ceramic Capacitor X7R 0201 (0603 Metric)	0201	SMT	
23	3	C5, C51, C52	Samsung Electro-Mechanics	CL03A105KQ3CSNC	CAP CER 1UF 6.3V X5R 0201	0201	SMT	
24	2	C11, C14	Samsung Electro-Mechanics	CL05A225MQ5NNNC	CAP CER 2.2UF 6.3V X5R 0402	0402	SMT	
25	2	C64, C65	KYOCERA AVX	KGM05ACG1H220JH	CAP CER 22PF 50V COG/NP0 0402	0402	SMT	
26	2	R7, R8	Vishay Dale	CRCW0201270RFNED	RES SMD 270 OHM 1% 1/20W 0201	0201	SMT	
27	1	Q2	Rohm Semiconductor	2SAR523MT2L	Bipolar (BJT) Transistor PNP 50 V 100 mA 300MHz 150 mW Surface Mount VMT3	SOT-723	SMT	
28	1	X3	Abracon LLC	ABS07-32.768KHZ-T	CRYSTAL 32.7680KHZ 12.5PF SMD	2-SMD, no lead	SMT	
29	3	C12, C10, C48	Murata Electronics	GRM155R60J475ME47D	CAP CER 4.7UF 6.3V X5R 0402	0402	SMT	
30	2	U\$3, U\$4	Samtec Inc.	SHF-120-01-L-D-SM-LC	CONN HEADER SMD 40POS 1.27MM	SMT	SMT	
31	1	L3	Taiyo Yuden	CB2518T471K	Power Inductors - SMD 1007 470uH 130Ohms +/-10%Tol 35mA	1007	SMT	
32	2	C3, C4	KYOCERA AVX	F980J476MMA	CAP TANT 47UF 20% 6.3V 0603	0603	SMT	
33	6	R3, R47, R52, R57, R58, R86	Panasonic Electronic Components	ERJ-1GNF4992C	RES SMD 49.9K OHM 1% 1/20W 0201	0201	SMT	
34	2	R50, R51	Panasonic Electronic Components	ERJ-1GNJ512C	RES SMD 5.1K OHM 5% 1/20W 0201	0201	SMT	
35	1	C46	Murata Electronics	GRM0335C1H680JA01D	CAP CER 68PF 50V COG/NP0 0201	0201	SMT	
36	1	R9	Vishay Dale	CRCW0201750RFKED	RES SMD 750 OHM 1% 1/20W 0201	0201	SMT	
37	1	X4	NDK America, Inc.	NX5032GA-8.000M-STD-CSU-1	CRYSTAL 8.0000MHZ 8PF SMD	2-SMD	SMT	
38	1	K20	Analog Devices Inc./Maxim Integrated	DS1100LZ-500+	IC DELAY LINE 5TAP 500NS 8SOIC	8-SOIC	SMT	
39	1	K19	NVE Corp/Isolation Products	IL 712-1ETR7	DGTL ISO 1000VRMS 2CH GP 8MSOP	8-MSOP	SMT	
40	1	JTAG1	Würth Elektronik	61301021121	CONN HEADER VERT 10POS 2.54MM	TH	Thru-hole	
41	2	K2, K15	Analog Devices Inc.	LTC3388EDD-3#TRPBF	IC REG BUCK PROG 50MA 10DFN	10-DFN	SMT	
42	1	U1	Analog Devices Inc.	LT1964IS5-SD#TRMPBF	IC REG LIN NEG ADJ 200MA TSOT23	TSOT-23-5	SMT	
43	1	K16	Analog Devices Inc./Maxim Integrated	MAX9142EKA+T	IC COMPARATOR 2 GEN PUR SOT23-8	SOT-23-8	SMT	
44	1	K29	onsemi	NC7SVL08FHX	IC GATE AND 1CH 2-INP 6MICROPAK2	6-UFDFN	SMT	
45	1	K17	Fairchild Semiconductor	NC7SZ86L6X	XOR GATE, LVC/LCX/Z SERIES, 1-FU	6-UFDFN	SMT	
46	1	R66	Panasonic Electronic Components	ERJ-1GN0R00C	RES SMD 0 OHM JUMPER 1/20W 0201	0201	SMT	Do not install
47	1	U\$10	Intan Technologies	RHD2164	Digital Electrophysiology Interface Chip	104-UFBGA	BGA	
48	1	K28	Texas Instruments	SN74AUP1G80DBVR	IC FF D-TYPE SINGL 1BIT SOT23-5	SOT-23-5	SMT	
49	1	K18	Texas Instruments	SN74LVC1G374DCKR	IC FF D-TYPE SINGL 1BIT SC70-6	SC70	SMT	
50	1	K27	Texas Instruments	SN74LVC3G14DCUR	IC INVERT SCHMITT 3CH 3IN 8VSSOP	8-VSSOP	SMT	
51	1	U3	STMicroelectronics	STM32L433RCT6TR	IC MCU 32BIT 256KB FLASH 64LQFP64	LQFP64	SMT	
52	13	3V3, 3V3AIN, BUSA, BUSB, GND, HIZVT, IN0, RXCAN, TXCAN, VIC, VICAIN, VIN, VINAIN	Adam Tech	PH1-01-UA	CONN HEADER VERT 1POS 2.54MM	TH	Thru-hole	
53	1	K23	Texas Instruments	TPS3805H33MDCKREP	IC SUPERVISOR 2 CHANNEL SC70-5	SC-70-5	SMT	
54	1	U\$6	Kingbright	APHF1608LSEEQBDZGKC	LED RGB CLEAR 4SMD	4-SMD	SMT	
55	1	K1	Diodes Incorporated	ZXCT1010ESTA	IC CURRENT MONITOR 1% SOT23-5	SOT-23-5	SMT	